Meeting of the Decommissioning Community Workgroup (#18)
Tuesday, January 27, 2004
Erie MetroParks, Huron

The meeting began at 7 p.m. Present were the following Workgroup members: John Blakeman; Janet Bohne; Mark Bohne; Ralph Roshong and Bill Walker. Also present from NASA were: Tim Polich, Decommissioning Project Manager; Keith Peecook, Senior Project Engineer; Sally Harrington, Public Affairs Specialist; Frank Greco, Program Manager; Peter Kolb, Decommissioning Environmental Manager; Mike Blotzer, Chief of Environmental Management for NASA Glenn and Manny Dominguez, Chief of Safety for NASA Glenn. Sheryl Leeper and Steve Neilsen of the U.S. Army Corps of Engineers, Tony Dull, Construction Contracts Manager for MWH Constructors and Susan Santos and Michael Morgan from FOCUS GROUP were also at the meeting.

NASA Decommissioning Project Manager Tim Polich began the meeting with a welcome to attendees and introductions of the participants. Susan Santos of FOCUS GROUP then reviewed the content of the packets that had been distributed to Workgroup members. It included minutes from the October 21 meeting (which the members subsequently accepted) and a schedule of 2004 Workgroup meetings. She also reviewed the agenda for the January 27 meeting and noted that NASA was aware of the general interest in holding a meeting at Plum Brook Station (PBS) and, pending security conditions, the possibility of having a Workgroup meeting (or perhaps the annual Community Information Session) at PBS. Susan then introduced NASA Senior Project Engineer Keith Peecook.

Project Update

Keith gave a Project Update, noting that NASA subcontractor Wachs Technical Services is currently in the midst of Phase 2 of segmentation activities, which he said would continue for another six to eight weeks. He said that in Phase 2, workers are removing the reactor internals "from the flow divider plate on up," including the middle sections of the control rods that once governed the power of the reactor. Keith said that removing the middle section of the control rods dropped the "dose" (exposure) at the top of the reactor tank by 50% - from 1400 millirem (1.4 Rem) per hour down to 700 millrem per hour. He described this reduction as "a good sign of our progress, as workers remove the more activated components." (Note: Activation refers to metals material that became irradiated due to its proximity to the reactor core when the reactor was operational). Keith also noted that the Mock-up Reactor, which had acted as a simulator for experiments when the main test reactor was operational, had been completely dismantled.

Keith informed Workgroup members that, in addition to segmentation activities, fixed and loose equipment removal efforts were progressing in the following Reactor Facility areas:

- Racks that had once held spent fuel containers in Canal G
- Equipment in the Service Equipment Building that had been used to support reactor operations
- Fixed equipment from the Reactor Building, the Fan House (where all ventilation equipment had been located) and the Waste Handling Building (where various materials had once been packaged).

Next, Keith updated the members on characterization efforts (to determine levels of radioactivity) throughout the Reactor Facility and recent sampling of what is known as the Cold Retention Area, two outdoor, 500,000-gallon tanks (which currently contain a total of about 800,000 gallons of groundwater). He explained the relationship between the Cold Retention Area and similar

areas located outside the Reactor Building. He said that when the Reactor Facility was operational, some deionized water from the facility's canals would periodically be discharged from the canals into what were termed Hot Retention Tanks, eight stainless steel tanks (25 feet below grade) that could hold 60,000 gallons apiece. Radioactive water from the canals would be discharged into the Hot Retention tanks. Then once shorter-lived radionculides had decayed and the water was less radioactive, workers would pump it into one of the Cold Retention tanks.

Keith said that once the radioactivity in the water in the Cold Retention Area had decayed below release levels, it would be pumped underground to the WEEMS (Waste Effluent Monitoring System) where it passed through detectors that were set to one-tenth of the regulatory discharge limits) the gate regulating the water closed and the water would be diverted to what was known as the Emergency Retention Basin, a five-acre earthen dike. Then, once the radioactivity in the water decayed below the WEEMS limits, it would be discharged. Hank Pfanner, a retired PBS reactor worker who attended the meeting, noted that there was almost never a need to use the Emergency Retention Basin.

Keith said NASA plans to pump the groundwater from the two Cold Retention Area tanks into the Erie County sewer system. Workgroup member Janet Bohne asked if the water in these tanks contained any benzene and Keith said it did not. Workgroup member John Blakeman then remarked, "As a layman, 800,000 gallons is a lot" and asked if this discharge could overwhelm the sewer system. Keith said the discharge would take place gradually, noting that the system could handle 200 gallons per minute – such that the entire process would take two to three weeks. He added that after the tanks were emptied, NASA would characterize the bottom of them, collect any silt that may be present there and "basically decontaminate those tanks." He added that the emptied tanks would eventually be filled with concrete and clean fill, limestone or dirt and said all structures three feet below grade would be similarly filled with concrete from demolished structures less than three feet below grade. Because of the tendency for below ground structures to become filled with groundwater, Keith explained that NASA plans to keep all structures intact until after the US Nuclear Regulatory Commission signs off on the Final Status Survey that NASA must conduct before the NRC can terminate NASA's license. Then, he said, NASA would demolish them.

<u>Low-Level Radioactive Waste Shipments</u>

Keith reported on shipments of low-level radioactive waste (LLRW) from the Decommissioning Project. He said that as of January 23, nearly 1.4 million pounds of waste had been shipped to licensed disposal facilities in Utah (Envirocare) and South Carolina (Barnwell), with some of the waste first reprocessed and size reduced at the Alaron facility in Pennsylvania. Keith added that a total of 1.2 million pounds (1,600 cubic yards) had gone to Envirocare while, to date, one cask containing reactor internal components had been sent to Barnwell. He added that the control rods – currently being stored in a steel liner – would eventually shipped in a special cask to Barnwell. He also said the heavy doors from the former canal areas of the Reactor Facility would be sent to Envirocare via intermodal transportation (a special container that can be mounted on a truck and then later on a train).

John Blakeman asked how many truck shipments had taken place to date and Keith estimated 50 to 60. He explained that presently there are about five truck shipments per week but that this figure could double during 2004. Tim Polich noted that all the trucks "come in empty" via the PBS front gate and that loaded trucks depart via the gate on Scheid Road that leads to U.S. 250 – resulting in a shorter ride on local, roads. The empty trucks are surveyed upon arrival at PBS and the contents to be placed on the trucks are also surveyed. Then, the loaded trucks are again

surveyed before departure. Workgroup member– and Erie County Emergency Management Agency (EMA) Director–Bill Walker said he appreciates the advance notice that NASA provides to him and to local public safety officials before each shipment. Keith pointed out that NASA informs EMA (and the Perkins Township Fire and Police Departments) at least a week before each shipment. Susan Santos added that shipment updates are also provided to the 24-hour, toll-free Information Line (1-800-260-3838) and that no area residents have ever called to register complaints or concerns about the shipments.

Keith said that, by the end of decommissioning in 2007, NASA will have shipped an estimated 18 million pounds of material off site, most of it to come in the form of soil and concrete shipments near the end of the project. John Blakeman asked how much the loaded trucks currently weigh upon departure, with Keith responding, about 40,000 to 45,000 pounds. Janet Bohne asked who was responsible for the LLRW shipments once they left Erie County. Tim Polich responded, "If you transfer radioactive material, you're responsible" while Keith added "It's ours no matter what."

Radiological Exposure Status

Keith gave a brief report on the radiological exposure status of decommissioning workers. He said that radiation exposure per worker is limited by the federal government to 5000 millirem (5 Rem) per worker, per year, but that NASA has instituted an administrative limit of 1000 millirem (1 Rem) per worker per year. He explained that a worker's exposure may exceed the administrative limit only by written request that would justify the additional exposure. Keith reported that the total project dose to date – since decommissioning work began in March 2002 – is 6 Rem, covering approximately 150 workers who wear TLD's (thermo luminescent devices) that serve as personal radiation monitors.

To date, Keith noted, only 17 workers have been exposed to more than 100 millirem on the project. The highest dose in 2003 was 466 millirem (still well below the maximum allowable dose) to one employee involved in segmentation work. He also said, "Our planning is working" to minimize dose according to ALARA (As Low As Reasonably Achievable) standards.

Demolition of Structures

Keith showed " before and after" slides of the reactor internals and tank, showing the removal of internal components through the use of remotely operated tools, shielding and video monitors in segmentation activities.

Keith also showed before and after slides regarding the demolition of other structures and buildings during the last quarter of 2003, including: the Mock-up Reactor; the Precipitator, a large, walled outdoor concrete tank that had been part of the water treatments system when the Reactor Facility was operational; the Gas Yard, which had been used to supply the Reactor Facility with helium; and the 80-foot tall exhaust stack, once part of the Reactor Facility's ventilation system

He noted that NASA had also been able to reuse two large electric transformers from the facility substation, which were surveyed and found to be free of radiation. They were sent to the PBS Hypersonic Tunnel test facility where they are now in use. John Blakeman asked about the segmentation of the exhaust stack, which did contain radioactive waste. Keith said the cutting was done within a tent to keep material from escaping into the atmosphere. Tony Dull of contractor MWH Constructors added that workers had used a "fixative" compound to prevent any

loose contamination. This compound goes on like a misted form of varnish that settles gently on a surface containing loose contamination without disturbing it. Once the fixative has dried, it forms a varnish like coating that binds the contamination in place

In response to a request from Workgroup members as to how decommissioning was proceeding, relative to the schedule, Keith reviewed the Decommissioning Project Baseline Schedule that was distributed to Workgroup members. He reiterated that most demolition on the schedule would be done after the license with the NRC had been teminated, with buildings that contain basements "stripped down to the bare walls."

Hot Lab Equipment Removal & Demolition

Tony Dull followed with a presentation on the removal of loose and fixed equipment from the Hot Lab Building, a 120' x 135' structure adjacent to the Reactor Building. He said the building, which once contained a series of water filled canals, had floors that ranged from 25 feet below ground level to 25 feet above ground and noted that during the Workgroup's Reactor Facility tour in April 2002, Workgroup members had entered the Hot Lab at the zero foot level. The 25 foot deep, interconnecting canals had connected the Hot Lab with the Containment Vessel in the Reactor Building.

Tony described several areas within the Hot Lab, including:

- The Hot Call Gallery –Consisting of seven interconnected "cells" (rooms) each 17 feet tall, 20 feet long and 8 feet wide, with cell walls four feet thick and a roof three feet thick. The Hot Cells had once been used in conjunction with reactor experiments, with workers examining specimens that had been exposed to the reactor, as well as "coupons, flat pieces of irradiated metal. The materials had been retrieved from canals leading to the reactor by the two cranes. Manipulator arms just outside the cells enabled reactor workers to conduct the experiments inside the cells without actually entering them. Each cell had once been covered with a door ranging from 20,000 tons up to 26,000 tons.
- Hot Handling Room – Consisting of a canal, two, Hot Cells and a "Hot Gas" area and a Hot Dry Storage area (a large, deep shielded pit where highly activated items from reactor experiments such as old reactor control rods and long tubes had been stored), the Hot Handling Room had been used to take "hot items" from the water of the canals and transfer them into either the Hot Cells or the Hot Dry Storage pit.
- Hot Wet Storage Area – Here materials fresh from reactor experiments were stored when they were retrieved from the canals

He also mentioned several other areas including a Decontamination Room, storerooms, a machine shop and mezzanine areas.

Tony showed "Before and After" slides of several Hot Lab areas, focusing on the Hot Cells and the Hot Dry Storage pit. He said loose equipment removal in the Hot Lab had begun in June of 2003, with some 600,000 pounds of dry, solid, low-level radioactive waste removed between June and October. This included more than 140,000 pounds worth of Hot Cell doors. Tony explained that so much loose equipment had remained in the Hot Lab (especially in the Hot Cells) because – when the Reactor Facility closed in 1973 – it had been anticipated that it might one day be made operational again, something which never occurred. He said most of the equipment from the Hot Cells had been placed in Sealand containers (that are later mounted onto flatbed trucks), with most of it taken to Envirocare, and a smaller amount of material taken to Alaron.

Tony also reported on work that MWH had done in the Hot Dry Storage (HDS) area 25 feet below ground. The canals that, when filled with water over 30 years ago were once were used for moving reactor experiment materials from the Containment Vessel into the Hot Cells and HDS, are now used to move the inventory of irradiated material in steel liners from HDS to a designated area of the Containment Vessel. Tony explained that workers had been able to reuse a heavy cart that had once operated in the Hot Lab – along with a remotely operated crane that had once been used to move materials in HDS. The cart and crane, along with rails installed last summer, are now employed as part of a Canal Transfer System used to move Hot Dry Storage material to the Containment Vessel.

Tony said that at the start of loose equipment removal from HDS in November there were more than 60 items in the pit that are in four categories. They include: contaminated (irradiated) items such as underwater vehicle (retrieved in November) once used to move small items in the canals; activated components such as beryllium "regulator rods" had become irradiated due to contact with the reactor core; the "Rod Rack" consisting of pieces of beryllium reflector sections of control rods that had once been used near the reactor core (what Tony termed "the biggest challenge" in HDS equipment removal); and reactor experiment tubes, five of which are 15 feet long and one that is eight feet long.

Tony said the contaminated items were not highly activated, and had been packaged and sent to Envirocare. He showed video clips taken with a remote camera of workers using remotely operated tools, including a "grabber" (hooked to a two-ton crane) to remove items from steel "hoppers" in the HDS pit. He explained that these hoppers were galvanized steel boxes – each five feet long, five feet deep and nearly 4 feet wide – that contained activated components. He added that the components would later be lifted into a steel liner, which would be moved into a designated area of the Containment Vessel, using the Canal Transfer System. Eventually, the liner will be placed in a shipping container, and using the Cask Transfer System, moved outside of the Containment Vessel and on to a truck for shipment to Barnwell. He said the Rod Rack and the tubes would also go to Barnwell, with workers using remote saws to cut the tubes before packaging and shipment.

<u>Work to be Completed</u>

Tony said that MWH workers would next remove fixed equipment and systems from the Hot Cells, including the tops of the cells and items (such as the manipulator arms) that had penetrated the shield walls in the Hot Cells. Workers will also remove all fixed equipment and systems from HDS after all of the irradiated inventory is removed. He estimated that completion of the remaining work in both the Hot Cells and HDS (including the Rod Racks and the hoppers) would be complete this spring. Also due for completion by spring is the removal of the tops of the canals and work in the following Hot Lab areas (listed below with a brief description of each area's function when the Reactor Facility was operational):

- Removal of the Off-Gas Cleanup System (Located south of the HDS pit, this is a pit 31 feet deep that was once used for the collection of vented gases from Hot Cell experiments that had then been processed in the Fan House).
- Removal of the "Hot Drains" (Where contamination was washed through, by way of the Hot Pipe Tunnel at the 12 foot level of the Hot Lab)
- Removal of all piping from the Hot Pipe Tunnel
- Removal of Contaminated Air Systems (They had been used to ventilate the Hot Cells – and filtered and ventilated the "off-gasses.")
- Removal of the Hot Sumps and the Liquid Waste Processing System (It had been used to collect various waste materials).

Some Workgroup members offered questions and comments during Tony's presentation. John Blakeman asked if any Hot Lab contamination had resulted during reactor operations and Tony said there had; but he noted that reactor workers used to perform "wash-downs" to minimize the contamination. Tony noted that facilities are "still in pretty good shape." Janet Bohne remarked on the lack of corrosion in the concrete walls of the canals, leading Keith Peecook to observe that when the Reactor Facility had been constructed, its builders "put fiberglass against the concrete walls," with the result that there is only about one quarter inch of contamination within the walls, instead of the six inches that some Decommissioning Team members had initially estimated. He added, "That's less concrete that we will have to scabble later," referring to the scraping process used to decontaminate concrete. This observation moved John to remark that the technology employed in building the reactor was "world class," adding, "this needs to be documented." Keith pointed out that this information would be included in the documentary video on the Reactor Facility that is now in production.

Community Relations Update

Sally Harrington reported that the January edition of the project's quarterly newsletter had been published (and sent to more than 2,100 recipients) and that information on LLRW shipments is included on the 24-hour, toll-free Decommissioning Information Line (1-800-260-3838). She also noted that NASA had recently undertaken a quarterly update of the project Website (at www.grc.nasa.gov/WWW/pbrf) that resulted in the addition of several new features, including an interactive Visitors' Survey. She invited those present at the meeting to visit the Website and complete the survey, adding that she had receive several responses.

Sally also noted that several community and professional organizations in Erie County and beyond had requested speaking presentations on the Decommissioning Project. She said Keith would speak at February and March engagements, with another possible for the fall. Sally also reported that NASA officials would be meeting on January 30 to discuss the documentary video and view it after final editing – with only the final narration to be added afterward. Keith said NASA would conduct a final viewing in March with Sally noting that there would be a premiere in June – a special showing for the NASA retirees interviewed in the video – with a public showing to be scheduled at a later date. Tim Polich mentioned that the State Theatre in Sandusky was a possibility for the public viewing. Sally added that the pictorial history book on the Reactor Facility was nearing completion and would be available to Workgroup members at the April meeting, adding that the documentary video would eventually be made available to libraries and schools in Erie County.

Sally reported on non-decommissioning activity at NASA Plum Brook Station (PBS), noting that Rich Kunath has been installed as General Manager, with former GM Bob Kozar now working to attract new business to the test facilities at PBS. She also mentioned the success of the Mars Exploration Rover landings, noting that the protective landing bags for both the Spirit and Opportunity Rovers had been tested at PBS. She added that there were also "two other connections" to the project at the NASA Glenn Research Center; Geoff Landis, who traveled to the Jet Propulsion Lab in Pasadena to study the effect of Mars' surface dust on the rovers and Joe Kolecki, who has been working on static electricity concerns related to the rovers. She said she had received several media inquiries about the mission, from television stations in Cleveland and Columbus, and from the *Cleveland Plain Dealer* and *Sandusky Register* among other newspapers.

John Blakeman asked if the success of the Mars landings would translate into work at PBS on the Mars and Moon missions proposed by President Bush, adding that "The public always wants to know what goes on behind the (PBS) fence." Sally answered by saying that would depend on the

next NASA budget but mentioned PBS Space Power Facility Manager Jerry Carek expected some new activity to be forthcoming. NASA Glenn Program Manager Frank Greco observed that PBS is a "unique facility," adding that the Glenn Center is "a leader in non-chemical propulsion," and that PBS would be a candidate to get some of this work. John observed that when the PBS road sign at the corner of Bogart and Botay Roads had been taken down last year, some area residents thought that the facility was closing; but now that there is a new sign in place, "people feel that things are going on there."

Susan Santos then noted that the April edition of the Decommissioning Newsletter would include some information on non-decommissioning activities at PBS, leading Workgroup member Mark Bohne to observe that "So few entities contribute in a positive way to (U.S.) technology as does NASA. The Decommissioning Project is a means of showing that (technology) and we should be tooting NASA's horn." Susan noted that Workgroup members had asked about coverage on all aspects of PBS activity and "we'll supply it."

Next Meeting

Susan asked about agenda items for the next meeting (April 20). Janet Bohne suggested a presentation or video on "what happens at Barnwell" once a Decommissioning Project shipment arrives at the LLRW disposal facility. Susan noted that NASA had been trying to obtain a video from Barnwell for about a year, leading Mark to suggest something on the Alaron reprocessing facility, if information from there would be easier to obtain. John added that some members of the public "still ask about sending (NASA) contaminated waste to other places." Keith said he would again try to get information from Barnwell, Alaron and also Envirocare. Janet also noted that NASA had fulfilled her request for information on local business utilization, which is now posted on the website. She said that local union official Drew Gundlach has asked her about this information last year.

The meeting adjourned at 9 p.m.